Filed on behalf of: Party Thomas W. Oakes
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Thomas W. Oakes,
Junior Party
(Application 10/785,234).

v.

GM Global Technology Operations, Inc.,
Senior Party
(Patent 7,459,065
Inventors: Nelson A. Kelly and Thomas L. Gibson)

Patent Interference 105,692 RES
(Technology Center 1700)

OAKES AMENDED CLAIMS

Sir,

Party Thomas W. Oakes ("Oakes") pursuant to settlement of the interference hereby files, attached as Appendix A, an amended copy of claims 1, 3-20, 23-27, and 29-35 of US application number 10/785,234. Party Thomas W. Oakes respectfully requests that these claims be returned for further examination.

Respectfully submitted,

LAW OFFICE OF BILL KOLEGRAFF

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For Party Thomas W. Oakes

Date: January 11, 2010

APPENDIX A

AMENDED CLAIMS
Application No. 10/785,234

1. (currently amended) A device for generating hydrogen gas, comprising:

an elongated vessel having a proximate end and a distal end, the elongated vessel holding an electrolyte solution;

a thin and flexible membrane extending from the proximate end to the distal end in the vessel, the membrane extending completely through the electrolyte solution ~~arranged~~ to form a chamber;

an elongated cathode strip in the chamber and positioned within the electrolyte solution, the elongated cathode strip substantially extending the length of the chamber;

an elongated anode strip in the vessel but not in the chamber and positioned within the electrolyte solution, the elongated anode strip substantially extending the length of the chamber;

a hydrogen gas collection area in the chamber;

a hydrogen gas exhaustion arrangement coupled to the gas collection area;

an electric source connected to the cathode and the anode; and

wherein the electric source includes a photovoltaic cell in the vessel and the membrane does not permit electrolyte solution to pass from the chamber.

2. (cancelled)

3. (previously presented) The device according to claim 1, further including an external electric source switchably coupled to the cathode and the anode.

4. (previously presented) The device according to claim 1, wherein the electrolyte and the photovoltaic cell are arranged so that the electrolyte acts to concentrate light rays onto the photovoltaic cell.

5. (previously presented) The device according to claim 1, wherein the vessel has a transparent cover, the transparent cover is constructed to concentrate light rays onto the photovoltaic cell.

6. (original) The device according to claim 5, wherein the cover includes a lens structure.

7. (original) The device according to claim 1, wherein the electrolyte solution is a mixture of water and an acid or salt.

8. (original) The device according to claim 1, wherein the electrolyte solution is a mixture of water and a polymeric gel-type electrolyte.

9. (original) The device according to claim 1, wherein the electrolyte solution is a mixture of water and a solid electrolyte.

10. (original) The device according to claim 1, wherein the membrane is arranged to form an oxygen chamber and the anode is in the oxygen chamber.

11. (original) The device according to claim 1, further including:

a second membrane arranged to form a second oxygen chamber; and

a second anode in the second oxygen chamber and positioned within the electrolyte solution.

12. (original) The device according to claim 1, further comprising:

an oxygen collection area in the vessel; and

an oxygen gas exhaustion arrangement coupled to the oxygen gas collection area.

13. (original) The device according to claim 1, wherein the membrane passes protons but not electrons.

14. (original) The device according to claim 1, wherein the membrane does not pass hydrogen gas.

15. (original) The device according to claim 1, wherein the electric source is a photovoltaic cell external to the vessel.

16. (original) The device according to claim 1, wherein the electric source is a hydroelectric turbine.

17. (original) The device according to claim 16, wherein the hydroelectric turbine has disks and impellers mounted alternately on a shaft, with the disks and impellers positioned in moving water and cause the shaft to turn responsive to water flow.

18. (original) The device according to claim 1, wherein the electric source is a wind turbine.

19. (original) The device according to claim 18, wherein the wind turbine uses a funnel concentrator to direct wind to a set of vanes, each vane having a convex shape above the leading edge and concave shape below the leading edge.

20. (original) The device according to claim 1, further including a cooling-heat transfer chip in thermal communication with the electrolyte and coupled to the electric source.

21. (cancelled)

22. (cancelled)

23. (currently amended) A device for generating hydrogen gas, comprising:

an elongated vessel having a proximate end and a distal end, the elongated vessel having a transparent cover;

a thin and flexible membrane extending completely through an electrolyte solution ~~arranged~~ in the vessel to form a separate hydrogen chamber and a separate ~~an~~ oxygen chamber;

an elongated cathode strip positioned in the hydrogen chamber and extending from about the proximate end to about the distal end;

an elongated anode strip positioned in the oxygen chamber and extending from about the proximate end to about the distal end;

the electrolyte solution in the hydrogen chamber~~, the electrolyte solution~~ at a level sufficient to cover the cathode, but allowing a hydrogen collection space;

the electrolyte solution in the oxygen chamber~~, the electrolyte solution~~ at a level sufficient to cover the anode, but allowing an oxygen collection space;

a solar cell in the vessel and positioned so that light can pass through the transparent cover, the electrolyte solution, and onto the solar cell;

power conduits connecting the solar cell to the anode and to the cathode so that electricity generated by the solar cell drives an electrolysis process;

a hydrogen exhaust coupled to the hydrogen chamber; and

wherein the membrane is a proton-passing membrane, and the membrane restricts hydrogen from passing from the hydrogen chamber into the oxygen chamber, and restricts oxygen from passing from the oxygen chamber into the hydrogen chamber, the membrane also restricting the electrolyte solution from passing between the chambers.

24. (original) The device according to claim 23, further including a wind-driven electric turbine connected to the cathode and the anode.

25. (original) The device according to claim 23, further including a water-driven electric turbine connected to the cathode and the anode.

26. (original) The device according to claim 23, wherein at least one of the anode or the cathode comprises platinum.

27. (original) The device according to claim 23, wherein at least one of the anode or the cathode comprises a metallic composite material.

28. (cancelled)

29. (previously presented) The device according to claim 1, wherein the membrane is between about 50 microns thick and about 125 microns thick.

30. (previously presented) The device according to claim 1, wherein the membrane is a sulfonated tetrafluorethylene copolymer.

31. (previously presented) The device according to claim 1, wherein the elongated cathode strip is a metal strip and the elongated anode strip is a metal strip.

32. (previously presented) The device according to claim 31, wherein at least one metal strip is stainless steel or nickel.

33. (previously presented) The device according to claim 32, wherein the at least one metal strip has a platinum coating.

34. (previously presented) The device according to claim 1, wherein the potential between the cathode strip and the anode strip in greater than 1.23V but less than 1.6V.

35. (previously presented) The device according to claim 1, wherein the potential between the cathode strip and the anode strip in greater than 1.6V but less than 1.9V.